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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,811	02/08/2002	Yiqiong Wang	LIGHT1900-2 (LIGHT1901)	1062

25548 7590 11/18/2002

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EXAMINER
CULBERT, ROBERTS P

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 11/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/072,811	WANG, YIQIONG	
	Examiner	Art Unit	
	Roberts Culbert	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-39 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-39 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-20, 22, and 25-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,776,661 to Handa in view of U.S. Patent 5,874,362 to Wong et al.

Handa teaches the formation of an optical waveguide (Column 9, Lines 67-68) and (Column 10, Lines 1-25) Handa teaches depositing glass on a substrate, forming a mask on the glass, and applying an etching medium to the glass. The ridge of the waveguide is formed including sides and facets. (Figure 15B.) Handa also shows the formation of a plurality of waveguides (Figure 11) Handa teaches the use of dry etching. Handa does not teach an etching medium including a fluorine-containing gas, and one or more partial passivants. Wong does teach the use of fluorinated gas mixtures for the purpose of etching glass using dry etching. Wong shows an etching mixture containing hydrogen bromide, silicon tetrafluoride, helium, and oxygen (Column 7, Lines 21-23). Wong also suggests the use of an etching medium including sulfur hexafluoride, and nitrogen trifluoride as etching gasses (Column 7, Lines 61-63). It would have been obvious to one of ordinary skill in the art at the time of invention to use the etching medium of Wong for the purpose of etching in the method of Handa in order to increase etch profile control and enhance mask selectivity as suggested by Wong.

Regarding claim 4, Wong also anticipates etching without the use of oxygen as suggested by the operating parameters summarized in Table 1. Wong shows an oxygen flow range of 0-10 sccm.

Claims 9-11, 15-17, 29, 30 and 33-35 differ from Handa in view of Wong by specifying various compositions and process conditions for the etching process such as pressure and molar ratio. A person having ordinary skill in the art at the time of the claimed invention would have found it obvious to modify Handa in view of Wong by using different processing parameters because same were known to be cause effective variables and routine experimentation would have been expected to optimize them. *In re* Boesch, 205 USPQ 215.

Changes in temperature, concentrations, or other process conditions of an old process, do not impart patentability unless the recited changes are critical, i.e., they produce a new and unexpected result. *In re Aller*, 105 USPQ 233.

Regarding claim 19, as applied above, Handa in view of Wong discloses the method of the invention substantially as claimed, but Handa uses a photoresist mask. Handa does not show the use of an oxide mask. Wong teaches that an oxide mask is suitable for the purpose of forming a mask (Column 5, Lines 52-55). It would have been obvious to one of ordinary skill in the art to use an oxide mask because it was known in the art at the time of invention to be a suitable method for forming a mask.

Regarding claim 28, as applied above, Handa in view of Wong discloses the method of the invention substantially as claimed, but does not teach obtaining the optical component from a supplier. The office takes official notice that obtaining starting materials from a supplier is well known in the art of semiconductor fabrication. It would have been obvious to one of ordinary

skill in the art at the time of invention to obtain starting materials from a supplier to simplify the fabrication process.

Claims 2, 23, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,776,661 to Handa in view of U.S. Patent 6,235,214 to Deshmukh et al.

As applied above, Handa discloses the method of the invention substantially as claimed, but does not teach the use of an etch mixture containing trifluoromethane. Deshmukh shows a gas mixture containing sulfur hexafluoride, oxygen and trifluoromethane (Column 2, Lines 33-35). It would have been obvious to one of ordinary skill in the art at the time of invention to use the etching medium of Deshmukh for the purpose of etching in the method of Handa in order to increase etch rate and enhance mask selectivity as suggested by Deshmukh.

Claims 3, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,776,661 to in view of U.S. Patent Application Publication US 2001/0001652 to Kanno et al.

As applied above, Handa discloses the method of the invention substantially as claimed, but does not teach the use of an etch mixture containing C_4H_8. Kanno teaches that C_4H_8, CHF_3 and SF_6 are suitable etchants for the purpose of etching a semicondutor (Paragraph 57). It would have been obvious to one of ordinary skill in the art at the time of invention to use the etching medium of Kanno for the purpose of etching in the method of Handa in order to improve the etch profile and enhance mask selectivity.

Claims 21 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,776,661 to Handa in view of U.S. Patent 5,853,960 to Tran et al.

Tran teaches a method for inductive coupled plasma etching of a glass lens (Column 8, Lines 24-37). It would have been obvious to one of ordinary skill in the art at the time of invention to use the inductive coupled plasma method of Tran in the dry etching step of Handa because, as shown by Tran, the method of inductive coupled plasma is well known in the art, and provides a suitable method for dry etching.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-34 of copending Application No. 09/845,093 in view of U.S. Patent 6,235,214 to Deshmukh et al, U.S. Patent Application Publication US 2001/0001652 to Kanno et al., and U.S. Patent 5,853,960 to Tran et al Although the conflicting claims are not identical, they are not patentably distinct from each other because the examined claims are either anticipated by, or would have been obvious over the reference claims in view of the prior art as applied above. See, e.g., *In re Berg*, 140 F.3d

1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed Cir. 1985);

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-39 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-72 of copending Application No. 09/932,253 in view of U.S. Patent 5,874,362 to Wong et al., U.S. Patent 6,235,214 to Deshmukh et al., U.S. Patent Application Publication US 2001/0001652 to Kanno et al., and U.S. Patent 5,853,960 to Tran et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of the prior art as applied above. See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985);

This is a provisional obviousness-type double patenting rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cho et al. and Takano et al show etching methods for forming optical waveguides.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (703) 305-7965. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

November 12, 2002